

What is claimed is:

1. A method for the forming of components of complex shape by
5 electrochemical material removal, in which, in the presence of an electrolyte, a linear oscillation of at least one of an electrode and a component to be machined is performed relative to the other, a circular oscillation of at least one of the electrode and the component to be
10 machined is performed relative to the other, and a linear feed and a circular feed of at least one of the electrode and the component to be machined relative to the other are performed simultaneously, as well as simultaneously to at least one of the circular oscillation and the linear oscillation.
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2. A method in accordance with Claim 1, wherein the linear oscillation and the linear feed are performed by the electrode and the circular oscillation and the circular feed are performed by the component to be machined.
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3. A method in accordance with Claim 1, wherein a negative of the component to be machined is initially made by means of a sample workpiece serving as an electrode, said negative being used as a working electrode in series production,
25 with said negative first being machined into the component to be machined in synchronous linear and circular oscillation and with at least one side surface of the component then being further formed by circular oscillation.

4. A method in accordance with Claim 1, wherein electrochemical material removal is performed on various portions of the component to be machined synchronously.
5. A method in accordance with Claim 1, wherein electrochemical material removal is preformed on various portions of the component to be machined separately.
6. A method in accordance with Claim 1, wherein the linear oscillation and the linear feed are performed by the component to be machined and the circular oscillation and the circular feed are performed by the electrode.
7. An apparatus for the forming of components of complex shape, comprising:
a workpiece holder for holding a component to be machined and an electrode holder for holding an electrode used to machine the component, at least one circular drive for driving one of the workpiece holder and the electrode holder in a circular oscillation and one of the workpiece holder and the electrode holder in a circular feed and a third drive for driving one of the workpiece holder and the electrode holder in a linear oscillation and a fourth drive for driving one of the workpiece holder and the electrode holder in a linear feed such that at least one of the workpiece holder and the electrode holder can be moved relative to each other with a simultaneous circular feed and linear feed, at least one of the workpiece holder and the electrode holder can be moved relative to each other with a circular oscillation, and at least one of the workpiece holder and the electrode holder can be moved relative to each other with a linear oscillation.

8. An apparatus in accordance with Claim 7, wherein the at least one circular drive is associated with the workpiece holder and the third and the fourth drive are associated
5 with the electrode holder.
9. An apparatus in accordance with Claim 8, wherein the at least one circular drive includes a first drive for providing the circular oscillation and a second drive for
10 providing the circular feed.
10. An apparatus in accordance with Claim 7, wherein the at least one circular drive is associated with the electrode holder and the third and the fourth drive are associated
15 with the workpiece holder.
11. An apparatus in accordance with Claim 10, wherein the at least one circular drive includes a first drive for providing the circular oscillation and a second drive for
20 providing the circular feed.
12. An apparatus in accordance with Claim 7, wherein at least one of the electrode holder and the workpiece holder are transversable in at least one of the X direction and the Y
25 direction.
13. An apparatus in accordance with Claim 7, wherein the circular oscillation and the circular feed are performed around an axis that is essentially parallel to a linear
30 oscillation axis.

14. An apparatus in accordance with Claim 7, wherein the circular oscillation and the circular feed are performed around a linear oscillation axis.
- 5 15. An apparatus in accordance with Claim 7, wherein the at least one circular drive includes a first drive for providing the circular oscillation and a second drive for providing the circular feed.